

of the above (10) to (14) on a supporting film.

(16) A photosensitive film according to the above (15), wherein said photosensitive film is prepared for a printed circuit board.

(17) A cured product of the resin composition according to any of the above (5) to (16).

(18) An article comprising having the layer of a cured product according to the above (17).

(19) An article according to the above (18), wherein said article is a printed circuit board.

(20) A two-liquid type of resin composition set comprising: a principal resin composition which contains (1) an urethane oligomer(A) or the salt thereof, (2) either an unsaturated group-containing polycarboxylic acid resin(B) or a thermoplastic polymer(D), and (3) a photopolymerization initiator(E) and a curing agent composition which contains a thermosetting component(F).

Best Mode for Carrying Out the Invention

The urethane oligomer(A) of the present invention can be obtained in a following way: A polyol compound(a) is reacted with a polybasic acid anhydride(b-1) having at least two anhydride groups per molecule and a polyisocyanate compound(c) to get a carboxyl group-containing urethane prepolymer having isocyanate at the terminal end, which is then reacted with an

ethylenically unsaturated group-containing hydroxy compound(d) to obtain the urethane oligomer. The urethane oligomer(A) has preferably a molecular weight of 1,000-100,000 and has preferably an acid value of 1-200mgKOH/g.

The polyol compound(a) to use for a starting material includes alkyl polyol, polyester polyol, polyether polyol, acryl polyol, polybutadiene polyol, phenolic polyol and/or a nonflammable polyol.

The alkyl polyol in the polyol compound (a) is generally an about C1-C10 aliphatic hydrocarbon substituted with about 2-6 hydroxy groups and includes 1,4-butane-diol, 1,6-hexane-diol, 1,8-octane-diol, neopentyl glycol, cyclohexane-dimethanol, trimethylol-propane, and pentaerythritol.

The polyester polyol in the polyol compound (a) includes a condensed polyester polyol, an addition polymerization polyester polyol and a polycarbonate polyol. The condensed polyester polyol includes the above alkyl polyol, preferably a polyester polyol having a molecular weight of about 100-100,000 that can be obtained by the condensation of a diol compound and an organic polybasic acid. The diol compound to use for the condensation includes a C1-C20, preferably about C2-C10 aliphatic glycol or a polyalkylene glycol derived from the aliphatic glycol and bound by ether bond such as ethylene glycol, propylene glycol, diethylene glycol, 1,4-butane-diol,

neopentyl glycol, 1,6-hexane-diol, 3-methyl-1,5-pentane-diol, 1,9-nonane-diol, 1,4-hexane-dimethanol, dimeric acid diol; and a poly(C1-C4)alkylene glycol such as polyethylene glycol. The organic polybasic acid to use for the condensation includes a C1-C30, preferably C2-C20 aliphatic or aromatic carboxylic acid substituted with about 2-4 carboxyl groups such as adipic acid, isophthalic acid, terephthalic acid and sebacic acid.

The addition polymerization polyester polyol in the polyol compound (a) includes polycaprolacton and has preferably a molecular weight of 100-100,000. Polycarbonate polyol can be synthesized by the direct phosgenation of a polyol or the ester interchange with diphenyl carbonate and has preferably a molecular weight of 100-100,000.

The polyether polyol in the polyol compound (a) includes a polyalkylene polyol having C2-C4 alkyl groups such as a PEG (polyethylene glycol) family polyol, a PPG (polypropylene glycol) family polyol, and a PTG (polytetramethylene glycol) family polyol. The PEG family polyol includes a polyethylene glycol obtained by the addition molymerization of ethylene oxide using metal sodium or anhydrous potassium hydroxide for the polymerization initiator and has preferably a molecular weight of 100-100,000. The PPG family polyol includes a polypropylene glycol obtained by the addition molymerization of propylene oxide using the above active hydrogen-containing compound for the polymerization initiator and has preferably